

AMENDMENT UNDER 37 CFR § 1.116
Application No. 09/902,957

Reconsideration and withdrawal of the rejections of record are respectfully requested.

Summary of Status of Amendments and Office Action

Claims 1 through 4 and 12 are pending in the application and presently stand rejected. Claims 1 and 12 are herein amended, and claim 3 has been cancelled. Thus, claims 1, 2, 4, and 12 are presently pending in the application, claims 1 and 12 being independent.

In the Final Office Action dated December 27, 2002, claims 1 through 4 and 12 are rejected under 35 U.S.C. § 112 as being indefinite. Claims 1 through 4 and 12 are also rejected under 35 U.S.C. § 102(b) as being anticipated by Ward et al. (U.S. Patent No. 4,185,040).

Response to the Rejection of Claims 1 through 4 and 12 under 35 U.S.C. § 112

Claims 1 through 4 and 12 are rejected under 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner states that it is unclear what the product of the contacting step of claims 1 and 12 is. The Applicants have amended claims 1 and 12 to clarify that cumene is the product of the contacting step. It is respectfully submitted that this amendment places claims 1 through 4 and 12 in condition for allowance.

Response to the Rejection of Claims 1 through 4 and 12 under 35 U.S.C. § 102(b)

Claims 1 through 4 and 12 are also rejected under 35 U.S.C. § 102(b) as being anticipated by Ward et al. (U.S. Patent No. 4,185,040).

In the Office Action, page 2, last paragraph, the Examiner states that the Ward et al. patent "discloses alkylating benzene with propylene to produce cumene in the presence of a zeolite such as MOR having a surface/volume ratio of 85-150 inch⁻¹, preferred 90-150 inch⁻¹, under the applicants' claimed conditions of phase (at least some liquid is present), temperature, pressure, and WHSV (see the abstract; col. 3, line 56-59; col. 5, lines 15-40)." The Examiner further states on page 3 that the amended claim 1

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reciting a liquid phase is not persuasive since Ward et al. disclose "at least some liquid phase."

Applicants respectfully disagree with the Examiner's position. It is respectfully noted that Ward et al. specify alkylation conditions encompassing a generally higher range of temperatures than those disclosed by Applicants. The state of the art at the time of the Ward et al. patent involved a primarily vapor phase reaction, with only small amounts of liquid present as necessary to reduce catalyst deactivation, and the disclosures of that patent would be interpreted as such by one skilled in the art.

Further, Applicants note that Ward et al. disclose the crystal types of X, Y, L, B, ZSM-5, and Omega as well as "mordenite, chabazite and the like" as suitable molecular sieves for use in their invention. There is no disclosure provided by Ward et al. that would direct one skilled in the art to select any catalyst from the group consisting of MCM-22, PSH-3, SSZ-25, MCM-36, MCM-49, and MCM-56, as now specified in claims 1 and 12. It is respectfully noted that the present claims 1 and 12 are not, therefore, anticipated by the disclosures of Ward et al.

It is known that a reference "must clearly and unequivocally disclose the claimed compound or direct those skilled in the art to the compound without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference," *In re Arkley*, 445 F.2d 586, 172 U.S.P.Q. 524 (CCPA 1972). Moreover, it has been held that for a prior publication to be sufficient to defeat a patent it must exhibit a substantial representation in such full, clear and exact terms that one skilled in the art may make, construct and practice the invention without having to depend on either the patent or his own inventive skills, *Philips Electronic & Pharmaceutical Industries v. Thermal & Electronics Industries*, 450 F.2d 1164, 171 U.S.P.Q. 641 (2d Cir. 1971).

Applicants also direct the Examiner's attention to col. 3, lines 26 to 30, where Ward et al. disclose that "a critical aspect of the invention resides in substantially completely removing zeolite alkali metal and alkaline earth metals from the zeolite, and replacing such metals with hydrogen ions and/or rare earth metals." The present

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invention does not mention or require any treatment to alter the molecular sieve for use therein.

It is respectfully submitted that the combinations and restrictions of the invention presently claimed are neither anticipated by nor obvious with respect to the disclosures of Ward et al. For the foregoing reasons, Applicants respectfully request that the Examiner withdraw all rejections.

CONCLUSION

For the reasons advanced above, Applicants respectfully submit that all pending claims patentably define Applicants' invention. Entry of this Amendment and allowance of the application is earnestly solicited.

Should the Examiner have any further comments or questions, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,

Date 3/27/03



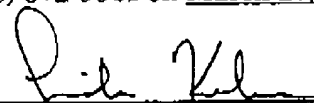
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3/27/03

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APPENDIX

Marked up copy of Claims

1. (Twice Amended) A process for the liquid phase production of cumene which comprises the step of contacting benzene and propylene under liquid phase alkylating conditions with a particulate molecular sieve alkylation catalyst to produce cumene, wherein the molecular sieve of the alkylation catalyst is selected from the group consisting of MCM-22, PSH-3, SSZ-25, MCM-36, MCM-49, and MCM-56 and the particles of said alkylation catalyst have a surface to volume ratio of about 80 to less than 200 inch⁻¹.

12. (First Amended) A process for producing cumene which comprises the step of contacting benzene and propylene under at least partial liquid phase alkylating conditions with a particulate molecular sieve alkylation catalyst selected from the group consisting of MCM-22, PSH-3, SSZ-25, MCM-36, MCM-49, and MCM-56, [mordenite and zeolite beta,] wherein the particles of said alkylation catalyst have a surface to volume ratio of about 80 to less than 200 inch⁻¹ and wherein the product of said contacting step comprises cumene.

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Marked up copy of Specification

At page 2, lines 1 through 5:

of by-products. [Work by the present inventors has shown that shaped catalyst particles, such as those disclosed in U.S. Patent Nos. 3,966,644 and 4,441,990 show little or no advantage when used in the liquid phase ethylation of benzene. Surprisingly, however, it has now been found that shaped catalyst particles can yield improved results in the liquid phase propylation of benzene to produce cumene.]
While preliminary testing showed limited advantages to using shaped catalyst particles, such as those disclosed in U.S. Patent Nos. 3,966,644 and 4,441,990, for liquid phase ethylation of benzene, surprising results were obtained with shaped particles used in liquid phase propylation of benzene to produce cumene.